Rio Tinto

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Ms. Nuria Muñiz
NPL Coordinator, Superfund Division
U.S. Environmental Protection Agency, Region 5
77 West Jackson Boulevard
Chicago, IL 60604

RE: ANALYTICAL RESULTS FOR STOCKPILED MATERIALS
HUMBOLDT MILL SITE, HUMBOLDT TOWNSHIP, MARQUETTE COUNTY, MICHIGAN

Dear Ms. Muñiz:

In response to your request, dated December 5, 2011, the purpose of this letter is to convey the results of analyses of stockpiled materials at the Humboldt Mill site in Humboldt Township, Marquette County, Michigan.

The analytical results presented herein were generated by Kennecott Eagle Minerals Company ("KEMC") for two purposes: (1) split sampling conducted during the U.S. EPA's site inspection in November of 2011; and (2) waste characterization sampling completed in October of 2010, August of 2011 and January of 2012. Some of the materials characterized include mining and beneficiation residuals that have been, or will be removed, from the property to facilitate redevelopment of the site and/or as an environmental response action undertaken by KEMC pursuant to an Administrative Agreement and Covenant Not to Sue ("CNTS") between KEMC and the State of Michigan under Part 201 ("Environmental Remediation") of 1994 Michigan P.A. 451, as amended.

Results from Split Sampling (November 2011)

A description of the split samples collected during the November 2011 U.S. EPA site inspection, including information regarding the disposition of materials sampled, is as follows:

Sample ID	Sample Type	Nature of Media	Sampling Location	Disposition of Sampled Materials
HMSS-001	Composite	Sand in Berm for Working Platform	North Berm Near Planned COSA[1]	Remains on Site
HMSS-002, HMS-002-D	Composite	Sand in Berm for Working Platform	South Berm over Buried Pyrite Trench	On-Site, Relocated for Pyrite Trench Excavation
HMSS-003	Composite	Beneficiation Residuals	Stockpile W of Mill Services Building	Stockpile Remains on Property
HMSS-004	Composite	Beneficiation Residuals	Temporary Stockpile Cell 4 (see Figure 1)	Removed from Site to Disposal Facility
HMSS-005	Composite	Beneficiation Residuals	Small Accumulation S/SE of Construction Trailers	Material Remains on Property

[1] Coarse Ore Storage Area

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Sample ID	Sample Type	Nature of Media	Sampling Location	Disposition of Sampled Materials
HMSS-006, HMSS-006 MS/MSD	Composite	Surface Soil	S/SE of HMSS-005 Sample Location	Remains on Property
HMSP-001	Grab	Fine Ore	Stockpile	Removed from Site to Disposal Facility
HMSP-002	Grab	Fine Ore	Stockpile	Removed from Site to Disposal Facility
HMSP-003	Grab	Sand from Under former Tank Foundations in Mill	Stockpile	Removed from Site to Disposal Facility

The approximate locations where samples were collected are presented on Figure 1. The analytical results from these samples are summarized in Table 1. Laboratory analytical reports for the samples are presented as Attachment I to this letter.

Materials sampled with sample identification numbers HMSP-001, HMSP-002 and HMSP-003 were derived from construction and selective demolition activities of historical beneficiation and related processes in and near the mill building. Fine ore residuals, represented by samples HMSP-001 and HSSP-002, were present on the site in fine ore bins when KEMC initiated activity on the property as a result of a prior owner's operations. Sand, represented by sample HMSP-003, was removed from an area underlying process equipment in the mill building, as part of selective demolition in the building. A similar stockpile of sand was present, near the center of the Former Leach Residue Stockpile, at the time of U.S. EPA's site inspection but was not sampled by U.S. EPA.

Results of Residuals Characterization (October 2010, August 2011 and January 2012)

In addition to the split sampling of residuals and soils presented above, KEMC had previously completed sampling of mining and beneficiation residuals on the Humboldt Mill property for waste characterization purposes. This sampling was completed in October of 2010 and was intended to characterize the residuals to obtain disposal acceptance at an off-site disposal facility. The materials characterized are located in the following five discrete areas at the site, as depicted on Figure 1:

- The "Former Crude Ore" stockpile area (designated "Cell 1"), located north of the Buried Pyrite Trench and west of the crusher plant;
- The "Buried Pyrite Trench" area (designated "Cell 2"), located west of the mill buildings;
- The "Concentrate" stockpile area (designated "Cell 3"), located southwest of the office/maintenance building and south of the crusher plant;
- The "Former Pyrite" stockpile area (designated "Cell 4"), located south of the office/maintenance building; and
- The "Former Leach Residual" stockpile area (designated "Cell 5"), located south and east of the main mill building.

Representative samples of the mining and beneficiation residuals were collected using a GeoProbe direct push drilling rig or stainless steel hand augers, depending upon the depth of residuals at the respective location. The soil boring locations are depicted on Figure 1.

Fifty discrete samples were collected, and twelve composite samples were prepared, using the compositing strategy summarized in Table 2. As noted in Table 2, each discrete sample consisted

of an approximate six-inch vertical section of the respective boring. For sampling locations located over areas of residual greater than two feet in thickness (e.g., portions of the Buried Pyrite Trench), a representative six-inch thick sample was collected approximately every two feet in depth. Samples were collected from only the mining and beneficiation residuals, not from within cover soil or the base of the excavation.

Each residual sample was divided into two equal aliquots: the first was used to create composite samples for laboratory analysis and the second part was preserved as a discrete sample for potential later laboratory analysis, if necessary. The representative samples were composited on a 4:1 or 5:1 basis (i.e., four or five discrete samples were used to create each composite sample), resulting in a total of ten composite samples. Only discrete samples from within the same cell were combined to form a spatially coherent composite sample. This strategy allowed the characterization analytical results to be assigned to specific volumes of the residual material. A summary of the sampling locations and current disposition of the materials sampled is as follows:

Sample ID	Sample Type	Nature of Media	Sampling Location	Disposition of Sampled Materials
CS-1-1	Composite	Crude Ore	Former Crude Ore Stockpile	Remains on Property
CS-2-1	Composite	Beneficiation Residuals	Buried Pyrite Trench	Remains on Property
CS-2-2	Composite	Beneficiation Residuals	Buried Pyrite Trench	Remains on Property
CS-2-3	Composite	Beneficiation Residuals	Buried Pyrite Trench	Remains on Property
CS-3-1	Composite	Beneficiation Residuals	Concentrate Stockpile	Remains on Property
CS-4-1	Composite	Beneficiation Residuals	Former Pyrite Stockpile	Removed from Site to Disposal Facility
CS-4-2	Composite	Beneficiation Residuals	Former Pyrite Stockpile	Removed from Site to Disposal Facility
CS-5-1	Composite	Beneficiation Residuals	Former Leachate Residue Stockpile	Remains on Property
CS-5-2	Composite	Beneficiation Residuals	Former Leachate Residue Stockpile	Remains on Property
CS-5-3	Composite	Beneficiation Residuals	Former Leachate Residue Stockpile	Remains on Property
DS-14	Discrete/Grab	Beneficiation Residuals	Buried Pyrite Trench	Remains on Property
DS-15	Discrete/Grab	Beneficiation Residuals	Buried Pyrite Trench	Remains on Property
DS-16	Discrete/Grab	Beneficiation Residuals	Buried Pyrite Trench	Remains on Property
DS-17	Discrete/Grab	Beneficiation Residuals	Buried Pyrite Trench	In Process of Being Removed from Site

A summary of the analytical results for the composite samples is presented in Table 3. The results of toxicity characteristic leachate procedure ("TCLP") analyses for select composite and discrete samples are presented in Table 4. Laboratory analytical reports, including relevant chain of custody documentation, are presented as Attachment II to this letter.

Additional waste characterization sampling of stockpiled materials at the site was also completed in August of 2011 and January of 2012. Materials stockpiled and sampled at these times include sand piles placed on the property as structural base for former above-ground storage tanks, scale and oxidized iron derived from a former water tank, and the concentrate stockpile (designated Cell 3). A summary of samples, sampling locations and materials sampled in August of 2011 and January of 2012 is as follows:

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Sample ID	Sample Type	Nature of Media	Sampling Location	Disposition of Sampled Materials
CN001	Composite	Scale/Iron from Former Water Tank	Stockpile NE of Mill Building	Remains on Property
M002	Composite	Scale/Iron from Former Water Tank	Stockpile NE of Mill Building	Remains on Property
TBS COMP	Composite	Sand from Under former Tank Foundations in Mill	East and West Stockpiles North of Cell 5	Removed from Property
East Pile	Composite	Sand from Under former Tank Foundations in Mill	East Stockpile, North of Cell 5	Removed from Property
West Pile	Composite	Sand from Under former Tank Foundations in Mill	West Stockpile North of Cell 5	Removed from Property
1201274-01	Grab	Beneficiation Residuals	Concentrate Stockpile	Remains on Property
1201274-02	Grab	Beneficiation Residuals	Concentrate Stockpile	Remains on Property

The results of the above soil and residuals sampling are summarized in Table 5. The results of analysis of three of the above samples for TCLP characterization are summarized in Table 6. Sampling locations are also presented on Figure 1. Laboratory analytical reports and chain of custody documentation are also presented in Attachment II.

Finally, additional historical information regarding the mining and beneficiation residuals present at the site may be available in the Michigan Department of Environmental Quality ("MDEQ") files. Such additional information was generated by others prior to KEMC's ownership and operations on the property. As a result, KEMC cannot make representations regarding the quality of this data or whether it is representative of materials currently or recently present on the site. If this additional information is of interest, we suggest that you contact representatives of the MDEQ, Upper Peninsula District Office.

If you have questions or wish to discuss anything presented here, please contact me at 906-486-1257, extension 229.

Sincerely,

Kristen Mariuzza, P.E.
Environmental and Permitting Manager
Kennecott Eagle Minerals

Enclosures

cc: R. Karl, US EPA/Region 5
D. Donohue, Warner Norcross
A. Reilly, Horizon Environmental